

# Transforming in the Digital Tide: An In-depth Analysis of the Impact of E-Commerce on Brick-and-Mortar Retail in China, 2018-2021

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## Abstract

Your abstract.

## 1 Introduction

The rapid expansion and integration of e-commerce in China has significantly changed the retail landscape in recent years. This report presents an in-depth analytical exploration of this transformation, focusing on how the burgeoning e-commerce sector influences and reshapes traditional brick-and-mortar retail. The comprehension of global retail trends necessitates a thorough awareness of the dynamics in China, which currently has a prominent position in Internet commerce. Our analysis begins with a comprehensive overview of the retail market in China, laying the groundwork to appreciate the scale and pace of change. We delve into the historical data on retail sales, examining online and offline channels to identify trends, patterns, and significant shifts in consumer behaviour. The aforementioned historical framework serves as a foundation upon which the contemporary emergence of e-commerce can be situated. We then turn our attention to the core of this report: the interplay between e-commerce and traditional retail. Here, we dissect the growth rates of online sales against their offline counterparts, revealing the impact of digital platforms on market share and consumer preferences and how traditional retailers adapt to this new era. This analysis seeks to illuminate the nuances of the transition from physical stores to digital platforms, highlighting areas of synergy, competition, and transformation. While our investigation touches on topics pertinent to various stakeholders in the retail industry, it is essential to clarify that this report's primary objective is analytical. We aim to offer a detailed, data-driven examination of the evolving retail landscape in China. Our focus is on unpacking the complex dynamics at play and providing a narrative that is rich in detail and insights.

In conclusion, this report seeks to contribute to the broader dialogue on the future of retail in the digital age. Through a comprehensive analysis of the Chinese market, recognised for its pioneering advancements in e-commerce and digital consumer interaction, our objective is to elucidate discernible patterns and trends that can shape and impact the worldwide retail industry.

## 2 Literature Review

The e-commerce landscape has been transformative since Amazon's inception in 1994. Beginning as a bookseller, Amazon expanded into a diverse global marketplace, achieving sales of \$136 billion by 2016. In parallel, the founding of Alibaba.com in China in 1999 marked the beginning of a significant shift in the Asian e-commerce market. Alibaba's 2018 Singles' Day sale, amassing \$30.8 billion in transactions, underscored the global impact of e-commerce, dwarfing the sales of Black Friday and Cyber Monday in the United States[LWZ19].

This evolution of e-commerce as a novel business model has profoundly affected consumer behaviours and consumption patterns[FTZZ18]. In developed countries, the discourse around e-commerce has focused on its welfare implications—ranging from reduced consumer search costs and increased product variety to its effects on traditional retail sectors, such as the decline seen in physical bookstores.

The growth trajectory of e-commerce in China is particularly noteworthy in this global narrative. By 2017, China boasted 772 million internet users, with 533 million participating in online shopping. The annual e-commerce trade volume soared from RMB 930 billion in 2004 to RMB 29,160 billion in 2017, highlighting a compound annual growth rate of 30%. This explosive growth was mirrored in online retail sales, which increased from RMB 125.7 billion in 2008 to RMB 5,155.6 billion in 2016. Internationally, China's contribution to global e-commerce transactions rocketed from less than 1% a decade ago to over 40%, surpassing the combined totals of economic powerhouses like France, Germany, Japan, the UK, and the US[LWZ19].

Yet, within China, the development of e-commerce reveals significant regional and urban-rural disparities. Central provinces such as Beijing, Shanghai, Zhejiang, and Guangdong recorded high percentages of online retail sales in 2015, while in contrast, less than 2% of retail sales were online in nine inland provinces. This dichotomy extends to the urban-rural divide, with 72.6% of the national total urban internet users compared to 27.4% in rural areas[Min16]. However, rural online retail transactions have grown more rapidly, increasing from RMB 353 billion in 2015 to RMB 895 billion in 2016[Min16].

This backdrop sets the stage for our investigation into how the e-commerce surge impacts traditional brick-and-mortar retail dynamics in China. As we delve into the nuances of this relationship, we aim to unravel the complexities of a market in transition, where the traditional and the digital coexist and compete, shaping the future of retail in one of the world's most vibrant economies.

### 3 Assumption

- **Data Reliability:** Assuming the data for e-commerce and traditional retail in China is accurate and representative of market trends.
- **Consistent Consumer Behavior:** Assuming consumer preferences remained stable, focusing solely on the impact of e-commerce on sales dynamics.
- **Broad Representation:** Assuming the data encompasses diverse geographic and demographic segments across China.
- **Technology Access:** Assuming widespread access to and usage of e-commerce platforms across different consumer segments.
- **Clear Retail Segmentation:** Assuming a distinct separation between online and offline retail channels for analysis purposes.

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$$S_n = \frac{X_1 + X_2 + \dots + X_n}{n} = \frac{1}{n} \sum_i^n X_i$$

denote their mean. Then as  $n$  approaches infinity, the random variables  $\sqrt{n}(S_n - \mu)$  converge in distribution to a normal  $\mathcal{N}(0, \sigma^2)$ .

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